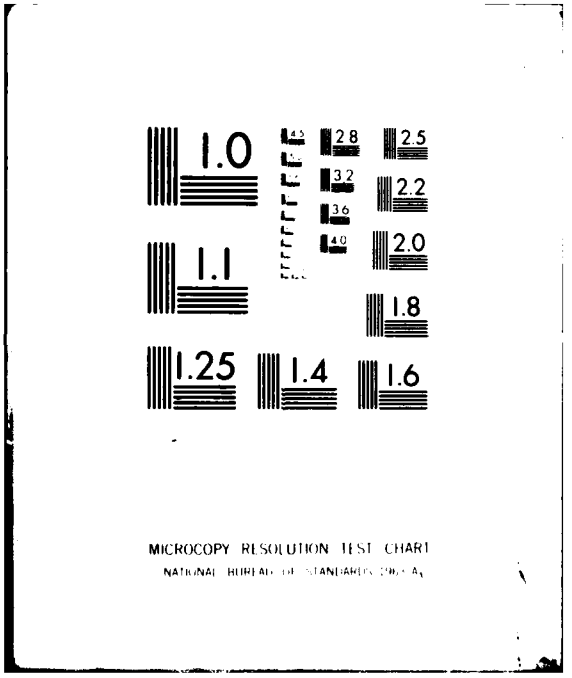
AD-A107 066 ARMY FIELD ARTILLERY SCHOOL FORT SILL OK F/G 19/3
INDEPENDENT EVALUATION PLAN FOR CREW BALLISTIC SHELTER FOR THE --ETC(U)
AUG 81

UNCLASSIFIED NL

END
DATE FILMED
12-81
DTIC


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
MICROCOPY RESOLUTION TEST CHART

LEVEL II

(1)

AD A107066

INDEPENDENT EVALUATION PLAN

FOR

CREW BALLISTIC SHELTER FOR THE M110A2

DECEMBER 1979

(REVISED 18 AUGUST 1981)

(9) 15

DTIC FILE COPY

391320

DEPARTMENT OF THE ARMY
UNITED STATES ARMY FIELD ARTILLERY SCHOOL
FORT SILL, OKLAHOMA 73503

ATSF-CD-MW

8 OCT 1981

SUBJECT: Independent Evaluation Plan (IEP) for M110A2 Self-Propelled Howitzer Crew Ballistic Shelter (CBS)

SEE DISTRIBUTION

1. The attached revised IEP is forwarded for your information/retention. Approval was granted by US Army Combined Arms Center, ATZL-CAT-EO, on 16 September 1981.

2. USAFAS POC is CPT Yee Litt, ATSF-CD-MW, AUTOVON 639-3190/4300.

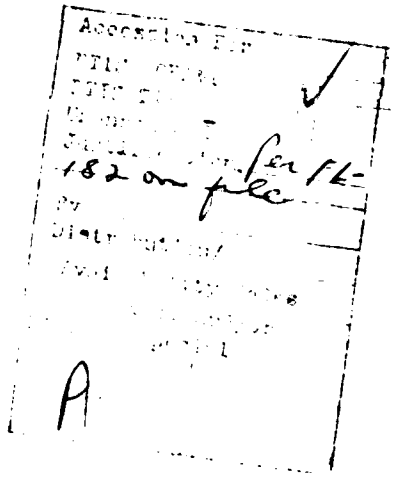
FOR THE COMMANDANT:

1 Incl
as

James C. Broadwell Jr.
[illegible]
Assistant Secretary

DISTRIBUTION:
Cdr, USATRADOC (ATTE-ZA, ATTE-ZC, ATEN-S, ATCD-T)
Cdr, USAOTEA (CSTE-PON)
Cdr, USATSC (ATTSC-DS-OPA)
Cdr, USALOGC (ATCL-M)
Cdr, USASSC (ATZI-NCR-PS)
Cdr, USAARRCOM (DRSAR-ASA, DRSAR-LEM)
Cdr, USANARADCOM (DRDNA-EPT)
Cdr, USAARRADCOM (DRDAR-LCW-S)
Cdr, USATECOM (USATRADOC-LO)
Cdr, USACAC (ATZL-CAT-E)
Dir, USAMSAA (ANXSY-DD)
Dir, USATRASANA (ATTA-CD)
Pres, USAFABD (ATZR-BDOP)
Dir, Defense Documentation Ctr (DDC-TCA)

TABLE OF CONTENTS



1.0 SYSTEM DESCRIPTION

1.1 Name of System: Crew Ballistic Shelter for the M110A2 Self-Propelled Howitzer.

1.2 Background: The results of Legal Mix V showed that the survivability of the M110 system could be significantly enhanced through the addition of ballistic protection to the M110 and its associated Ammunition Resupply Vehicle. In response to a USAFAS initiated draft LOA, the Project Manager for the 8-inch Howitzer System prepared a Product Improvement Proposal (PIP) to provide the protection. (There are no formal Requirements Documents.) The PIP was approved and a concept study was completed by Pacific Car and Foundry Company in March 1977. Three concepts were presented which varied in weight/cost. USAFAS favored a lightweight, overhead cover as being the most practical from a cost/weight standpoint. In 4Q FY79, DA/DARCOM/TRADOC imposed a requirement to provide an NBC collective protection system with ventilated face mask, a requirement that was integrated with the ballistic shelter PIP to facilitate hardware application. This PIP was approved and funded during successive reviews in 1977 through 1980.

1.3 Characteristics and Configuration: The Crew Ballistic Shelter consists of a removable armored cab fastened to the vehicle turret. It is similar in shape and appearance to the present winterization kit. Sight openings and doors in the front and sides of the shelter provide for fire control sighting operations. An M8 NBC Collective Protection System is also included. NBC System refers to the ventilated facepiece system (VFPS) which provides filtered air, via hoses, directly to the individual crew members. The VFPS includes two M-8 particulate filter units with individual heaters at each station, M25A1 mask, and hoses to deliver the filtered air. The M25A1 mask has a gas particulate canister attached to it by a short flexible hose. If a crew member must exit the vehicle in an NBC environment, the M25A1 mask when disconnected from the GPFU serves as a standard protective mask. Torsion bars on the chassis will be standardized as a part of this product improvement to enhance suspension.

1.4 Concept of Employment: The Ballistic Shelter will enhance the Field Artillery's support of maneuver forces by significantly improving survivability of the on-board crew against hostile artillery fire. The Shelter will remain installed on the weapon for all normal operations, e.g., road march, firing, etc. The shelter can be removed by the organic howitzer crew with the aid of the organizational maintenance wrecker, when necessary, to facilitate maintenance or transportability. Both the howitzer and shelter can be transported on one flat car.

1.5 Test Manager: CPT Daryl Yee Litt, USAFAS, ATSF-CD-MW, AUTOVON 639-3190/4300.

2.0 ISSUES AND ASSOCIATED CRITERIA

*2.1 Issue: Are the maximum and sustained rates of fire for the M110A2 with crew ballistic shelter adequate to accomplish the unit mission?

2.1.1 Scope: This issue evaluates the ability of the system (howitzer, crew and associated equipment) to provide timely direct and indirect artillery fires under full operational conditions in support of assigned missions using the current families of projectiles (M650, M509 and M107). The system capabilities

*Denotes critical issue.

will be examined under typical daytime and nightime operating conditions as well as during simulated NBC attack. The howitzer will be fully equipped so that the impact of adding the shelter, NBC protective equipment, small unit transceiver (SUT) and gun display units (GDU) on the rates of fire can be assessed. The ability to deliver indirect fire at the prescribed rate at high and low angle and at varying deflections will be examined. The impact of the addition of the crew ballistic shelter will be assessed to determine if it imposes human factors problems for the crew, degrades the rates of fire or if there is sufficient lighting for both day and night operations. Included in this examination will be a determination by crew personnel of the presence of adverse impulse noise levels, and/or air contamination from engine exhaust or firing. Crew access to the loader/rammer, elevating and traversing mechanisms, direct fire telescope, and other on-board equipment will be examined to determine if they are easily accessible to support mission requirements.

2.1.2 Criteria: a. The maximum indirect rate of fire for the M110A2 with crew ballistic shelter shall be no less than 1½ rounds per minute for three minutes with a 90% confidence level.

b. The sustained indirect rates of fire for the M110A2 with crew ballistic shelter shall be no less than one round every two minutes with a 90% confidence level.

c. With the howitzer emplaced and laid, ammunition prepared and on the loading tray the initial round in direct fire at armored targets shall be delivered in no less than 20 seconds from receipt of the initial fire command with a 90% confidence level.

d. When the howitzer is not emplaced, the first round of direct fire against armored targets shall be delivered in no less than 93 seconds after the howitzer stops in firing position with a 90% confidence level.

2.1.3 Rationale: The capabilities described in 2.1.2 are necessary to accomplish the Field Artillery's indirect fire missions and/or to provide for defense against attack by armored vehicles.

2.2 Issue: Is the tactical mobility of the M110A2 howitzer with crew ballistic shelter adequate for employment in accordance with current operational concepts and doctrine?

2.2.1 Scope: This issue examines tactical mobility and command and control. The system will be employed during day and night, over varying terrain, cross-country, on dirt and improved roads in accordance with the operational mode summary/mission profile. Different howitzer crews should be used over terrain not previously traversed when obtaining mobility and command and control data. All operations will be conducted with full combat load under tactical conditions which require the section chiefs to rapidly respond to changes in direction, route, and/or position. Factors which degrade the ability to command and control will be reported.

2.2.2 Criteria: a. The movement rates of the M110A2 howitzer with crew ballistic shelter shall not be degraded more than 7% of the baseline M110A2 howitzer.

b. The median time to displace the M110A2 howitzer with crew ballistic shelter shall not exceed two minutes. Displacement time will begin when the command "march order" is issued to the section chief and will end when the howitzer has been moved 50 meters away from the firing position with collimator, aiming stakes and section equipment recovered and on-board the weapon.

c. The median time to emplace the M110A2 howitzer with crew ballistic shelter shall not exceed 8.5 minutes from the time the howitzer stops at the designated position and is emplaced (but not laid), to include travel lock disengaged, fluid levels checked in accordance with procedures specified in the operators manual, spade emplaced, muzzle plug removed, and fire control equipment installed.

2.2.3 Rationale: The M110A2 with crew ballistic shelter must be highly mobile in order to be effective and meet assigned mission.

2.3 Issue: Is the M110A2 howitzer with crew ballistic shelter transportable by the M17A1 heavy duty transport vehicle, standard railway flatcars, ship and C5A aircraft?

2.3.1 Scope: This issue evaluates the transportability of the system by selected standard transportation modes. The system will be examined to determine if it is transportable in accordance with STANAG 2805E on the standard military rail flatcar with the shelter removed. The howitzer crew's ability to load, tiedown and unload the system on a railway flatcar with standard equipment will be examined. Shelter and howitzer marking for lifting and tiedown on the flatcar will be examined for adequacy. The howitzer will be test loaded on the M17A1 heavy duty transport and in the C5A aircraft mockup. The system will be examined to determine if aircraft and truck tiedown and lifting point locations are designated, along with strength rating and center of gravity locations. The crew's ability to load and tiedown and then unload the system will be examined to determine training adequacy.

2.3.2 Criteria: a. The M110A2 with CBS shall be capable of transportation by an M17A1 heavy duty transport vehicle.

b. The M110A2 with CBS removed but on the same flatcar shall be capable of being transported on one DODX military rail flatcar IAW STANAG 2805E and the Berne International Agreement for rail movement. The time from arrival at the railhead to the completion of tiedown shall be less than one hour.

c. The M110A2 with CBS shall be capable of transportation by ocean-going transport ships IAW AR 705-8 and within the current constraints for the M110A2.

d. The M110A2 with CBS shall be capable of being transported by C5A aircraft.

e. The CBS data plate shall be IAW MIL-STD 209.

2.3.3 Rationale: Necessary for accomplishment of the FA mission.

*2.4 Issue: Does the M110A2 howitzer with crew ballistic shelter possess a sufficient level of reliability and maintainability to be operationally effective?

2.4.1 Scope: This issue evaluates the impact of the addition of the crew ballistic shelter, M8 NBC collective protection system, and the standardization of the system's torsion bars on system reliability and maintainability. Since the impact of the changes are basically automotive in nature, full compliance with the system's operational mode summary/mission profile is not required; however, the operational mode summary/mission profile should be complied with to the extent possible (during rates of fire subtesting) and should only exclude firing in any case. The system will be examined to determine if the addition of the crew ballistic shelter limits or degrades access to, functioning of, or maintenance/servicing of the system or its subsystems. Specific areas to be examined are: air filters, radiator, fuel tanks, spade functions, travel lock, on-vehicle equipment racks, gun mount, fire extinguisher system, traversing motor, loader/rammer, batteries, air intake or exhaust system, gun tube/breech maintenance and replacement, the engine and/or the replacement of parts, components, and subassemblies on the cannon. The adequacy of manuals, tools, and test equipment will be examined to determine if there are additional requirements. Data on mean time to repair and maintenance ratios will be collected and reported at the organizational, direct support and general support levels of maintenance. The system will be fired with the tube canted to insure that the traversing motor will be capable of safely holding the additional shelter weight when the tube is traversed and fired under canted conditions. Even though the addition of the CBS is automotive in nature, it will not increase the armament MTTR or MR.

2.4.2 Criteria: a. The M110A2 howitzer chassis with crew ballistic shelter shall demonstrate at least 219 mean miles between system failure with a 90 percent confidence level.

b. The mean miles between unscheduled maintenance actions shall be no less than 95 miles.

c. The howitzer crew must be able to remove/install the crew ballistic shelter with organizational equipment in less than 60 minutes.

d. The Crew Ballistic Shelter will not cause a delay of more than 10 minutes during tube/breech changing operations when compared to the M110A2 without shelter.

e. Maintainability Characteristics:

		MTTR (Clock Hours)	MR (Man Hours/Round) (Man Hours/Mile)
Total	Arm	3.8	.155
	Auto	4.8	.24

*Denotes critical issue.

Maintainability Characteristics (Cont'd):

		MTTR (Clock Hours)	MR (Man Hours/Round) (Man Hours/Mile)
Crew	Arm	1.5	.24
	Auto	2.8	.15
Org	Arm	1.5	.011
	Auto	2.5	.07
DS	Arm	2.8	.054
	Auto	4.3	.01
GS	Arm	5.1	.067
	Auto	9.2	.016

2.5 Issue: Is the vehicular battery adequate to power the system at full capacity with all equipment operating? If so, how often must vehicle engine be started to recharge the batteries while in this configuration?

2.5.1 Scope: This issue evaluates the capability of the vehicle battery to power the weapon and auxillary systems (NBC system, heater, blower motor, SUT, GDU) while performing fire missions without the engine running and to determine the maximum time between engine restarts and how long the engine must be run to recharge the batteries. Experience has shown that the engine must be started after approximately 20 minutes of operation to prevent total discharge of the batteries. The engine must be run for approximately 10 minutes to recharge the batteries.

2.5.2 Criterion: The frequency and length of battery recharing operations shall not be significantly (A = .1) more than that for the baseline M110A2 howitzer.

2.5.3 Rationale: Required to maintain mission effectiveness of weapon.

2.6 Issue: Is the positioning/storage of NBC protective clothing and equipment on the M110A2 howitzer with crew ballistic shelter adequate?

2.6.1 Scope: This issue will be examined under fully operational conditions during day and night under simulated NBC attack. Equipment availability and accessibility will be examined to determine if the equipment/clothing can be used without hinderance by the crew inside the shelter in a timely manner. The impact of the location of other equipment on crew protective measures will be examined to determine if personnel protective measures are degraded by on-board equipment.

2.6.2 Criteria: a. All members of the howitzer crew who are inside the howitzer when an NBC attack alarm is given shall don protective clothing in eight minutes or less without tearing or damaging the clothing.

b. All members of the howitzer crew who are inside the howitzer when an NBC attack alarm is given shall don the M8 collective protection system breathing apparatus in less than nine seconds.

2.6.3 Rationale: Required to survive an NBC attack in combat.

2.7 Issue: Is the M110A2 howitzer with crew ballistic shelter compatible with current and near time 8-inch projectiles, with the M548 cargo carrier, and the XM992, Field Artillery Ammunition Support Vehicle (FAASV)?

2.7.1 Scope: This issue examines the compatibility of the modified M110A2 howitzer with the M650, rocket assisted projectile, the M509 family of projectiles, the XM837 anti-radiation projectile (ARP) and with the M548 and XM992 vehicles. Compatibility will be examined during day and night operations and under simulated NBC attack with and without camouflage netting employed. The system should be examined while firing missions at varying quadrant elevations and deflections and in firing positions that have varying degrees of slope. Specified system capabilities should not be exceeded.

2.7.2 Criterion: The crew will be required to load the M650, M509 and XM837 projectiles into the M110A2 howitzer with crew ballistic shelter from either the M548 or XM992 vehicles.

2.7.3 Rationale: All types of 8-inch ammunition and ammunition resupply vehicles must be compatible with the M110A2 howitzer missions. Ammunition handling and loading must sustain required rates of fire for the system. Incompatibilities or difficulties in loading the various projectiles cannot degrade specified rates of fire. M650, M509 and XM837 projectiles are specifically included because of incompatibilities observed in the concept evaluation of the prototype M110A2 with crew ballistic shelter. The M106 projectiles will be evaluated during normal fire missions in the operational test.

*2.8 Issue: Is the Logistic Supportability (LOG-S) increased for the M110A2 system with the Crew Ballistic Shelter-installed as compared to the M110A2 system without shelter?

2.8.1 Scope: This issue evaluates the logistic supportability of the M110A2 system with Crew Ballistic Shelter to include equipment manuals, training and personnel.

2.8.2 Criteria: a. There will be no special tools or equipment required to support the M110A2 system with CBS other than those organic to a M110A2 battery.

b. All manuals will reflect proper integration of installation/removal and maintenance actions for the CBS.

*Denotes critical issue.

c. No additional personnel will be required to support the CBS at battery/ battalion level.

d. Requirements for supply and maintenance facilities will not be increased at battery/battalion level.

e. Transportability characteristics will be consistent with current logistic support material.

2.8.3 Rationale: Required to assess the logistic impact of the CBS to the present system.

2.9 Issue: What level of ballistic protection is afforded to the howitzer crew by the CBS?

2.9.1 Scope: This issue examines the material(s), thickness of which the shelter should be constructed, trade-offs in terms of improved survivability versus weight of armor material and can the shelter provide the shelter survivability requirements of at least 75% survivors (5 minute assault criteria) after three battery volleys of 152mm HE munitions have been massed as the M110 battery that is located with a 50m TLE?

2.9.2 Criteria: Alternatives for the on-board crew are -

a. No shelter or body armor (winter uniform and old helmet).

b. No shelter, but new vest and helmet.

c. Shelter (3/8" AL and 26-ply Kevlar) but no vest and old helmet.

d. Shelter (3/8" AL and 23-ply Kevlar and 16-ply nylon) but no vest and old helmet.

e. Shelter (3/8" AL and 26-ply Kevlar) and new vest and helmet.

f. Shelter (3/8" AL and 23-ply Kevlar and 16-ply nylon) and new vest and helmet.

g. For Threat data see letter, DRXSY-GS, US Army AMSAA, 20 May 81, Subject: Ballistic Survivability Assessment of the M110A2 Crew Ballistic Shelter (CBS) PIP 1-79-05-1008.

2.9.3 Rationale: To provide the maximum protection possible with the available alternatives.

3.0 CONCEPT OF EVALUATION - Request for waiver to evaluate one M110A2 CBS during OT II in lieu of three M110A2s with CBS was approved on 5 June 1981.

3.1 Analytical Techniques to be Used: This evaluation will not test the SUT radio, battery computer system, or NBC system. These systems are to be evaluated in regards to their mounting locations and compatibility with crew/ weapon operations inside the shelter. Issues will be tested with crew in

normal field uniform and also in full NBC protective dress with NBC system in operation. Objective analysis (questionnaires, ANOVA, statistical hypothesis testing, contingency table analysis and confidence level techniques) will be conducted during OT II. A final subjective analysis of the objective analysis results and experienced military judgment will be utilized to determine the overall military worth of the shelter and the applicability to the FA.

3.2 Operational Tests: The Operational Test (OT) may be conducted separately from Development Test (DT). Information from both tests may be used to answer the issues noted in paragraph 2 above. Failure to fully satisfy certain criteria will be subjectively evaluated to determine the magnitude of resulting operational impacts.

3.3 Development Tests: To be conducted by the materiel developer.

3.4 Relevant Force Development Testing and Experimentation or Joint Tests: N/A.

3.5 Contractor Test: N/A.

3.6 War Games/Simulations: N/A.

3.7 Pertinent Studies: Survivability study by AMSAA published on 20 May 81.

3.8 Personnel Documents: N/A.

4.0 DATA SOURCE MATRIX

	ISSUE	DT	OT	CEP	AMSAA**
*2.1	Operational Compatibility		X	X	
2.2	Mobility	X	X	X	
2.3	Transportability	X	X	X	
*2.4	RAM		X		
2.5	Vehicular Power Supply	X	X		
2.6	NBC Protection		X		
2.7	Ammunition Compatibility	X	X	X	
*2.8	Logistic Supportability (LOG-S)	X	X		
2.9	Survivability				X

*Denotes critical issue.

**Ballistic Survivability Assessment of M110A2 CBS PIP 1-79-05-1008, US Army AMSAA, 20 May 81.

5.0 MAJOR MILESTONE CHART

	Proponent	Event	Date
a.	USAFAS	Revised IEP Coordinated w/USAFABD	T-277
b.	USAFAS	Revised IEP Coordinated w/Other Agencies	T-238
c.	USAFABD	Revised OTP to CAC	T-180
d.	USAFAS	Logistics Concept to USAFABD	T-180
e.	USAFAS	Mission Profile to USAFABD	T-180
f.	USAFAS	Training TSP to USAFABD	T-180
g.	USAFAS	Revised IEP Forwarded to CAC	T-165
h.	CAC	Revised IEP Approved	T-
i.	USAFABD	TDP Coordinated with USAFAS	T-90
j.	USATRADOC	TDP Approved	T-30
k.	USAFABD	Test 1 Mar - 2 May 82	
l.	USAFABD	Start Test*	T-Date
m.	USAFABD	Test Report Completed	T+120
n.	USAFAS	Independent Evaluation Report (IER)	T+150
o.	USAFAS	Recommend Position	T+158
p.	USATRADOC	Establish/Approve IPR Position	T+168
q.	Project Manager	IPR Convened	T+186

*Milestones can be accelerated based on test length.

ANNEX A

COORDINATION ANNEX

This IEP was coordinated with the agencies listed below:

AGENCY	CONCUR	COMMENTS	ACCEPTED	REJECTED
USACAC	X	28	23	5(a)
USALEA	X	3	3	0
USATRADOC (ATTE-ZA)	X	2	0	2(b)
USATSC	X	1	0	1(c)
USASSC	X	3	1	2(d)
USATRASANA	X	1	1	0
USAARRCOM	X	5	3	2(e)
USAFABD	X	10	7	3(f)
USAOTEA	X	0		
USALOGC	X	0		
USANARADCOM	X	0		
USAARRADCOM	X	0		
USATECOM	X	0		
USAMSAA	X	0		

(a) Item 2, pg 1, para 1.3 - Comment: Add photos of subject system if they are available. Improve the description of the NBC system. PARTIALLY ACCOMMODATED - Photos not available.

Item 13, pg 5, para 2.1.14.2 - Comment: Define the length of the road marches and the number of occupations and displacements that the unit must be able to withstand. NOT ACCOMMODATED - This issue was deleted.

Item 18, pg 7, para 2.1.21 - Comment: Reword as follows, "Is the Training Support Package adequate for the safe and correct installation/removal of the CBS?" The remaining information should be included as part of the scope for this issue. NOT ACCOMMODATED - This issue was deleted.

Item 27, pg 8, para 3.2 - Comment: Elaborate on the tactical conditions under which the OT test will be conducted. Also, include test length, number of vehicles to be tested, and number and type of personnel to participate. NOT ACCOMMODATED - This information will be included in the TDP/OTP by the testing agency.

Item 28, pg 9, para 4.0 - Comment: Engineering tests are indicated as a source of information yet not mentioned as part of paragraph 3.0. Some explanation as to the nature of these tests should be added in paragraph 3.3 or 3.5, whichever is more applicable. NOT ACCOMMODATED - Engineering tests will not be used to evaluate OT II. Engineering tests were used to construct the prototype shelter.

(b) Item 1, pg 3, para 2.1.8.2 - Comment: The sample size is inadequate to derive any supportable judgment. Recommend the sample for RAM be increased or the data be collected and viewed in a less stringent context. NOT ACCOMMODATED - A waiver on test sample size was approved by HQ TRADOC on 5 Jun 81.

Item 2, pg 7, para 2.1.20 - Comment: This issue does not appear to be critical. Analysis may prove it to be. NOT ACCOMMODATED - The proponent feels that this is a critical issue.

(c) Item 1, pg 7, para 2.1.21.1 - Comment: Change paragraph 2.1.21.1 to read: This issue evaluates the adequacy of the training concept. Test players representative of MOS identified in the QQPRI will be given a performance evaluation prior to training to insure that they have the requisite skills of their MOS. Afterward these personnel will be trained IAW the traiing concept with the material in the training support package. Any deviation in the materials should be documented. At the conclusion of training, test player performance will be evaluated to insure that they can perform the required tasks to standard. If a failure occurs, a retrain/retest cycle will be initiated until the individual "passes" the test or the cycle has been repeated a maximum of three times. This information will be documented and used to support the Operational Test Readiness Statement (OTRS). Player performance during the conduct of the test will be used to answer this issue. NOT ACCOMMODATED - This issue was deleted.

(d) Item 2, pg 7, para 2.1.21.1 - Comment: Scope should be expanded to include whether the technical documentation is accurate, comprehensive and adequate. The documentation should be analyzed to insure that the information provided is accurate and that the level of detail is sufficient for inexperienced personnel to use. The documentation should be fully proceduralized, organized in such a manner that illustrations are facing the text and the procedures for installation/removal of the Crew Ballistic Shelter are accurate. This evaluation should be conducted while observing test players during installation/removal operations of the Crew Ballistic Shelter. NOT ACCOMMODATED - This issue was deleted.

Item 3, pg 8, para 3.0 - Comment: Paragraph should be expanded and state that the size of the test population will be adequate to insure test results are valid. NOT ACCOMMODATED - This information is contained in the OTP.

(e) Item 1d, pg 4, para 2.1.10.2d - Comment: The supply aspect will be increased. We are adding a shelter and NBC protection, repair parts. Both will be added to the Supply System and will increase supply aspects somewhat. NOT ACCOMMODATED - This issue pertains to physical facilities, not supply parts. This proponent realizes that with the addition of the shelter and NBC protection system, additional repair parts will increase the supply aspect.

Item 1e, pg 6, para 2.1.17.2 - Comment: The criterion as stated appears to imply that the M110A2 with CBS installed must be able to pass through the Berne International Tunnel. It will not. NOT ACCOMMODATED - The proponent knows that the M110A2 w/CBS will not pass through the Berne International Tunnel and that a judgment will be made at a later date.

(f) Item 6, pg, 6, para 2.1.17 - Comment: Delete. NOT ACCOMMODATED - This is a transportability issue, not a logistics issue.

Item 8, pg 7, para 2.1.20 - Comment: Delete. NOT ACCOMMODATED - This is a transportability issue.

Item 10, pg 7, para 2.1.22.2 - Comment: Change to read: The vehicle battery shall be able to power the system at full capacity with all equipment operating with ___ running time of engine, per hour. NOT ACCOMMODATED - This issue is to determine how long the battery will power the systems.


DAT
FILM
2